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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,978	10/24/2001	Michael W. Morrow	42390P12943	1432

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EXAMINER

TRAN, DENISE

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,978

Applicant(s)

MORROW, MICHAEL W.

Examiner

Denise Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 and 29-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/24/01</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Applicant's election without traverse of group II comprising claims 14-28 in the reply filed on 8/23/04 is acknowledged. Claims 1-13 and 29-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/23/04.

2. Claims 14-28 are presented for examination.

3. Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

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Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly

complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

4. Applicant's specification is objected because it fails to provide for a description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Specifically, almost every sentence in the specification includes the term "maybe" or "may". Because the limitations in the specification are described this way they may operate as described or may not operate as described. Appropriate correction is required.

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5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because the abstract is not within the range of 50 to 150 words . Correction is required. See MPEP § 608.01(b).

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "table walk device is adapted to receive memory access protection data" claim 19, lines 1-2; "the table walk device transmits an abort signal to the processor if the process is not permitted to access data stored in the memory device" claim 22, lines 1-3; "the MMU is adapted to provide memory access protection . . . volatile memory" claim 25, lines 1-4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 14-28 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon the ambiguous language used in the Applicant's specification to describe their invention. Specifically, almost every sentence in the specification includes the term "maybe" or "may". Because the limitations in the specification are described this way they may operate as described or may not operate

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as described. Furthermore, in claim 24, Applicants add the limitation of a MMU to claim 23. However on page 2 of Applicant's specification, Applicants admit that adding an MMU may increase the overhead and adversely affect the performance of the system. Therefore Applicant has concealed their best mode.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 14-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by McCarthy et al., U.S. Patent No. 5,666,509, hereinafter McCarthy.

As per claim 14, McCarthy teaches the use of an apparatus, comprising:

A memory controller (e.g. figure 3, element 44);

A table walk device connected to the memory controller (e.g. figure 3, element 42).

As per claim 15, McCarthy teaches the use of the table walk device combines a portion of the virtual address and a portion of a base address (e.g. figure 7).

As per claim 16, McCarthy teaches the use of the table walk device comprises a table base register to store a table base address (e.g. figure 7, element 70).

As per claim 17, McCarthy teaches the use of a TLB coupled to the table walk device (e.g. figure 3, element 40).

As per claim 18, McCarthy teaches the table walk device generates a descriptor and the TLB is adapted to receive the descriptor from the table walk device (e.g. col. 7, lines 63-67).

As per claim 20, McCarthy teaches a processor coupled to the table walk device (e.g. figure 1, element 14) and a memory device coupled to the memory controller (e.g. figure 2, element 30 or figure 1, element 22).

12. Claims 23-24 and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Gaskins et al., U.S. Patent No. 6,681,311, hereinafter Gaskins.

As per claim 23, Gaskins teaches the use of a system, comprising:

A processor (e.g. col. 4, lines 60-67, inherent that the processor unit within the microprocessor generates the virtual address element 132 to provide for the actual execution of the received data);

A discrete memory controller adapted to perform a table walk operation and coupled to the processor (e.g. figure 7, element 106);

A volatile memory device coupled to the discrete memory controller (e.g. figure 7, element 116 or col. 2, lines 12-20).

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As per claim 24, Gaskins teaches the use of a MMU (i.e., TLB, figure 7, element 702), wherein the discrete memory controller is coupled to the processor via the MMU (e.g. figure 7, bus 154).

As per claim 26, Gaskins teaches the use of the discrete memory controller is adapted to provide address translation by using results of the table walk (e.g. col. 6, lines 2-10).

As per claim 27, Gaskins teaches the use of the discrete memory controller performs a table walk by combining a portion of a virtual address and a portion of a base address to generate an address of a descriptor (e.g. col. 5, lines 5-15 and col. 6, lines 2-10).

As per claim 28, Gaskins teaches the use of the volatile memory device is a DRAM (e.g. col. 2, lines 10-20).

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCarthy et al., U.S. Patent No. 5,666,509, hereinafter McCarthy in view of Zolnowsky, U.S. Patent No. 4,766,537.

As per claims 19, 21 and 22, McCarthy does not specifically show the use of the table walk device is adapted to receive memory access protection data, determine

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whether a process executing in the processor is permitted to access data stored in a memory device, or an abort signal to the processor if the process is not permitted to access data stored in the memory device. Zolnowsky shows the use of the table walk device is adapted to receive memory access protection data, determine whether a process executing in the processor is permitted to access data stored in a memory device, or an abort signal to the processor if the process is not permitted to access data stored in the memory device (e.g. col. 5, lines 9-12 and col. 11, line 50 to col. 12, line 20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Zolnowsky with McCarthy because it would provide for protection against unauthorized access (e.g. col. 11, lines 50-55).

15. Claims 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaskins et al., U.S. Patent No. 6,681,311, hereinafter Gaskins in view of McCarthy et al., U.S. Patent No. 5,666,509, hereinafter McCarthy.

As per claim 25, Gaskins does not specifically show the use of the MMU is adapted to provide memory access protection by preventing a process executing in the processor from accessing predetermined data in the volatile memory device. McCarthy shows the use of the ATC is adapted to provide memory access protection by preventing a process executing in the processor from accessing predetermined data in the volatile memory device (e.g. figure 6 and col. 6, lines 17-20). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine

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McCarthy with Gaskins because it would provide for because it would provide for protection against unauthorized access at the earliest stage of address processing.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Keshlear et al. (4763250) shows memory management unit having number of translation table levels.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise Tran whose telephone number is (571) 272-4189. The examiner can normally be reached on Monday, Thursday, and Friday from 8:45 a.m. to 5:15 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim, can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DT.

11/28/04